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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/826,312 | 04/19/2004 | Paul B. Corkum | PAT 892-2 US | 9811 |
| 26123 | 7590 | 09/15/2006 | EXAMINER | |
| BORDEN LADNER GERVAIS LLP WORLD EXCHANGE PLAZA 100 QUEEN STREET SUITE 1100 OTTAWA, ON K1P 1J9 CANADA | | | DUPUIS, DEREK L | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2883 | |

DATE MAILED: 09/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/826,312

Applicant(s)

CORKUM ET AL.

Examiner

Derek L. Dupuis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 8, in combination with the replacement drawings filed 7/18/2006, with respect to the objection to the drawings have been fully considered and are persuasive. The objection to the drawings has been withdrawn.

2. Applicant's arguments filed 7/18/2006 have been fully considered but they are not persuasive. In pages 9 and 10, applicant argues that Flory et al do not teach a three-dimensional bulk dielectric material. The examiner disagrees with this assertion. Flory et al teach that the bulk dielectric material can be two-dimensional or three-dimensional (see paragraphs 51-54).

3. In pages 9 and 10, applicant argues that Flory et al do not teach that the connection path is written into the material. Applicant argues that the claimed invention is manufactured by writing a connection path using a Femtosecond Laser Dielectric

Modification process. This is a product-by-process limitation:

Note that a "product by process" claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Thorpe*, 227 USPQ 964, 966; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and *In re Marosi et al.*, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear. See also MPEP 2113.

4. This limitation does not distinguish over the Flory et al reference regardless of the process used to create the connection path within the material, because only the final product is relevant, and not the process of making such as writing with a Femtosecond Laser Dielectric Modification. Furthermore, Femtosecond Laser Dielectric Modification is not claimed, and as discussed above, even if it were claimed it would not patentably

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distinguish the claim over the prior art because “writing” is a product by process limitation.

5. In pages 10 and 11, applicant argues that TIR does not apply to a device such as that disclosed by Flory et al. The examiner respectfully disagrees. Flory et al teach that the photonic crystal device operates using total internal reflection in at least one dimension (see paragraphs 6, 28, and 54).

Drawings

6. The drawings were received on 7/18/2006. These drawings are accepted.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1, 3-10, 13, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by *Flory et al (US 2004/0126055 A1)*.

9. Flory et al teach an optical connector comprising a three-dimensional optically-transmissive bulk dielectric (31) with an input (32) path and an output path (33, 34) written within the bulk dielectric (31). The input path (32) and the output path (33, 34) are connected so as to transmit a light signal between an input component and an output component. The three-dimensional bulk dielectric is a prism as seen in figures 1 and 2. The connection paths are waveguides and the connection paths are bent as shown in

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figure 2. Flory et al also teaches that the connection path can be a straight through path. The photonic structure results in local modifications in the refractive index thus creating the waveguiding structure. The photonic crystal waveguide has a high degree of efficiency with low losses including a low loss at a 90 degree bend. Flory et al also teach that a plurality of connection paths can be written within the bulk dielectric to connect multiple inputs and outputs. See paragraphs 4, 5, 26-30, and 51-57.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2, 11, 12, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Flory et al (US 2004/0126055 A1)* as applied above to claims 1, 3-10, 13, and 14.

12. Flory et al teach an optical connector as discussed above. Flory et al do not explicitly teach that the bulk dielectric material is made of glass. However, it would have been obvious to one of ordinary skill in the art at the time of invention was made to use glass as the dielectric material since the examiner takes official notice of the equivalence of glass and other dielectric materials for their use in the optics art and the selection of any of these known equivalents to form a waveguiding structure would within the level of ordinary skill in the art.

13. Flory et al teach that the bent connection path includes two orthogonal (90 degree) waveguides disposed in the bulk dielectric. However, Flory et al do not

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explicitly teach that the connection between the waveguides is a TIR connection with a polished surface. Applicant has admitted in the reply filed on 4/10/2006 that “the selection of a TIR connection or a photonic crystal structure are well-known equivalents for providing a bent waveguide while limiting bending losses at the turn.” Therefore, the selection of any one of these admitted equivalents would be “a matter of design preference” and one of ordinary skill in the art would have found it obvious to substitute a TIR connection for a photonic crystal structure.

14. Flory et al teach that multiple connection paths can be duplicated in the bulk dielectric. It would have been obvious to one of ordinary skill in the art at the time of invention to use a plurality of stacked connectors to form a connector assembly since it has been held that the mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Conclusion

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

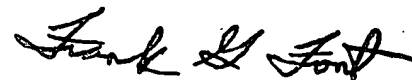
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek L. Dupuis whose telephone number is (571) 272-3101. The examiner can normally be reached on Monday - Friday 8:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Derek L. Dupuis
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Frank G. Font
Supervisory Patent Examiner
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✓